Translation

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference	FOR FURTHER ACTION	See Form PCT/IPEA/416
03007 P 10 WO		
International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/DE2004/000454	08.03.2004	11.03.2003
International Patent Classification (IPC) or national classification and IPC		
Applicant		
THYSSENKRUPP VDM GMBH		

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 7 sheets, including this cover sheet.
3. This report is also accompanied by ANNEXES, comprising:
   a. ☐ *(sent to the applicant and to the International Bureau)* a total of _____ sheets, as follows:
      ☐ sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).
      ☐ sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.
   b. ☐ *(sent to the International Bureau only)* a total of (indicate type and number of electronic carrier(s))
      _____, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).
4. This report contains indications relating to the following items:
   - ☒ Box No. I Basis of the report
   - ☐ Box No. II Priority
   - ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
   - ☐ Box No. IV Lack of unity of invention
   - ☒ Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
   - ☐ Box No. VI Certain documents cited
   - ☐ Box No. VII Certain defects in the international application
   - ☐ Box No. VIII Certain observations on the international application

Date of submission of the demand	Date of completion of this report
Name and mailing address of the IPEA/EP Facsimile No.	Authorized officer Telephone No.

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.
PCT/DE2004/000454

Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ This report is based on translations from the original language into the following language _____, which is the language of a translation furnished for the purposes of:

☐ international search (Rule 12.3 and 23.1(b))

☐ publication of the international application (Rule 12.4)

☐ international preliminary examination (Rule 55.2 and/or 55.3)

2. With regard to the **elements** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

☐ the international application as originally filed/furnished

☒ the description:

pages _____ as originally filed/furnished

pages* 1-7 received by this Authority on 23.12.2004 with the letter of 20.12.2004

pages* _____ received by this Authority on _____

☒ the claims:

nos. _____ as originally filed/furnished

nos.* _____ as amended (together with any statement) under Article 19

nos.* 1-16 received by this Authority on 25.05.2005 with the letter of 25.05.2005

nos.* _____ received by this Authority on _____

☐ the drawings:

sheets _____ as originally filed/furnished

sheets* _____ received by this Authority on _____

sheets* _____ received by this Authority on _____

☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.

3. ☐ The amendments have resulted in the cancellation of:

☐ the description, pages _____

☐ the claims, nos. _____

☐ the drawings, sheets/figs _____

☐ the sequence listing *(specify)*: _____

☐ any table(s) related to sequence listing *(specify)*: _____

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

☐ the description, pages _____

☐ the claims, nos. _____

☐ the drawings, sheets/figs _____

☐ the sequence listing *(specify)*: _____

☐ any table(s) related to sequence listing *(specify)*: _____

* *If item 4 applies, some or all of those sheets may be marked "superseded."*

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.
PCT/DE2004/000454

Box No. V **Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Claims	1-16	YES
	Claims		NO
Inventive step (IS)	Claims		YES
	Claims	1-16	NO
Industrial applicability (IA)	Claims	1-16	YES
	Claims		NO

2. Citations and explanations (Rule 70.7)

1. Reference is made to the following documents:

D1: US-A-4 414 023
D2: WO 01/54899 A
D3: DE 198 34 552 A

2. Documents

2.1 Document D1 discloses (see the relevant passages of text indicated in the search report) an Fe-Cr-Al-alloy having the following composition (in wt.%): 3.0-8.0% Al, 8.0-25.0% Cr, at least 0.002-0.05% of one of the elements from the group Ce, La, Nd, Pr, rare earths maximum 0.06%, Si max. 4.0%, 0.06-1.0% Mn and common impurities.

The composition of the alloy overlaps with the composition of the alloy according to claim 1 of the present application. There is no difference between the compulsory element Mn in D1 and the optional addition of Mn in the present application, since the effect of Mn is the same. Moreover, the two examples as per the invention,

Hf1 and Hf2, contain in the table on page 4 the element Mn with a content of 0.28% and 0.15%.

D1 also discloses using the alloy in the form of foils or wires as catalytic material and as heating conductors or electrical resistor elements. D1 also discloses a conventional production method involving the following steps: melting, ingot or strand casting, hot rolling, cold rolling and process annealing, from which the production method according to the method steps specified in claim 1 does not differ.

2.2 D2 discloses (see the relevant passages of text indicated in the search report) an Fe-Cr-Al-alloy with the following composition (in wt.%): 2-6% Al, 16-25% Cr, 0.1-3% Si, max. 0.5% Mn, 0.01-0.3% Zr and/or 0.01-0.1% rare earth metal and/or Y, Hf, Ti, max. 0.01% Mg, max. 0.1% Ca, with the remainder being made up of Fe and common impurities.

The composition of the alloy overlaps with the composition of the alloy according to claim 1 of the present application.

The composition in example 2 falls under the composition according to claim 1.

D2 also discloses using the alloy in the form of foils as support material for motor vehicle catalytic converters or as heating elements for

cooking plates. D2 also discloses a conventional production method involving the following steps: melting, ingot or strand casting, hot rolling, cold rolling and process annealing, from which the production method according to the method steps specified in claim 1 does not differ.

2.3 D3 also discloses (see the relevant passages of text indicated in the search report) an Fe-Cr-Al-alloy with a high degree of temperature oxidation resistance and which overlaps with the composition of the alloy according to claim 1 of the present application.

D3 also discloses using the alloy for exhaust gas catalytic converters or heat conductor resistors and a conventional production method involving the following steps: melting, ingot or strand casting, hot rolling, cold rolling and process annealing.

3. Inventive step (PCT Article 33(3))

3.1 The invention as per claim 1 consists simply in a specific use of the alloy known from D1, D2 and D3, namely for components that are used exclusively within the temperature range of 250°C to 1000°C in diesel vehicles and two-stroke mechanisms.

Since the temperature and corrosion levels prevalent in the present application are lower than those in the tests indicated in D1, D2 and

D3, the alloy, if suitable for use in petrol engines, must also be suitable for use in diesel engines. Some of the tests are obvious to a person skilled in the art.

In addition, D2 (see D2: for example page 7, last paragraph) provides details of oxidation tests that are comparable to those in the present application (see the description of the present application and the drawing on page 5). Since the results in D2 (example 2: change in mass of 3.8% after 400 hours at 1100°C) are comparable with the results in the present application, the material in D2 must also be suitable for the use specified in the present application. Moreover, the use of the alloy in D1, D2 and D3 is not restricted to petrol engines, but is generally suitable for exhaust gas and motor vehicle catalytic converters. Consequently, the claimed use is at least obvious to a person skilled in the art.

The subject matter of claim 1 thus fails to involve an inventive step.

3.2. Dependent claims 2-16 do not contain any features which, in combination with the features of any claim to which they refer, meet the PCT requirements for inventive step, since the features of those claims are either disclosed or suggested by D1 to D3; see documents D1-D3 and the relevant passages of text indicated in the search report.

Box No. V **Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

Regarding claim 16, the applicant should note that the properties of a material are a direct result of the composition of the alloy and of the process steps used and since the composition of the alloy and the process steps in D1 and D2 are the same as in the present application, the properties in D1 and D2 also do not differ. Consequently, the properties in D1 and D2 must be the same as in the present application and therefore the subject matter of claim 16 also lacks inventive step.